JAPANESE [JP,2586741,Y]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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CLAIMS

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(57) [Utility model registration claim]
[Claim 1] It equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element, and they are rodding, this, and seal rubber of one about each above-mentioned seal member. While constituting, equipping a bore-diameter-of-outer-ring side with one of seal members and carrying out the seal of the outside-diameter-of-inner-ring side In the sealing device of the bearing which equips an outside-diameter-of-inner-ring side with the seal member of another side, and was made to carry out the seal of the bore-diameter-of-outer-ring side The fitting section corresponding to the flection of a member is prepared. the above-mentioned inside seal -- the flection of outwardness [rodding / of a member] -- preparing -- the above-mentioned outside seal -- the root section of the lip of the seal rubber of a member -- the above-mentioned inside seal -- the above-mentioned inside seal -- the sealing device of the bearing characterized by setting the incurvation height of the flection of a member as the height into which the above-mentioned fitting section and the root section of a lip fit
[Claim 2] While it equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element, and rodding, this, and the seal rubber of one constitute each above-mentioned seal member and equipping a bore-diameter-of-outer-ring side with one of seal members the sealing device of the bearing which comes to equip the seal member of another side an outside-diameter-of-inner-ring side -- setting -- the above-mentioned inside seal -- the flection of outwardness [rodding / of a member] -- preparing -- the outer-diameter side of the flection -- a bore-diameter-of-outer-ring side or an outside-diameter-of-inner-ring side -- inserting -- equipping -- the above-mentioned inside seal -- the lip of a member -- the opposed face of the bearing washer of another side -- pressing -- the above-mentioned outside seal -- the sealing device of the bearing characterized by making the above-mentioned flection press the lip of
[Claim 3] It equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element, and is a metal ring about the above-mentioned inside seal member. While constituting, and rodding, this, and the seal rubber of one constituting an outside seal member and equipping a bore-diameter-of-outer-ring side with one of seal members In the sealing device of the bearing which comes to equip the seal member of another side an outside-diameter-of-inner-ring side Prepare an outward flection in the metal ring of a member, and insert the outer-diameter side of the flection in a bore-diameter-of-outer-ring side or an outside-diameter-of-inner-ring side, and it equips with it. the above-mentioned inside seal -- the above-mentioned inside seal -- a member -- a bore side -- between the bearing washers of another side -- a gap -- preparing -- the above-mentioned outside seal -- the sealing device of the bearing characterized by making the above-mentioned inside seal member press two or more lips of a member

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DETAILED DESCRIPTION

[Detailed explanation of a design]
[0001]
[Industrial Application] this design -- the sealing device of bearing -- being related -- especially -- the unilateral of a rolling element -- setting -- between an inner ring of spiral wound gasket and outer rings of spiral wound gasket -- an inside seal member and an outside seal -- it is related with the sealing device equipped with the two seal member of a member
[0002]
[Description of the Prior Art] as the sealing device since it is exposed to dust or storm sewage in bearing, such as a driveshaft of an automobile, -- one side of a rolling element -- setting -- between an inner ring of spiral wound gasket and outer rings of spiral wound gasket -- an inside seal member and an outside seal -- it is equipped with total a member of four seals in two sheets of a member, and the both sides of a rolling element
[0003] an example of the sealing device of the former [drawing 15] -- it is -- an inside seal -- a member 1 and an outside seal -- the seal rubber 5 and 6 united with rodding 3 and 4 and it in the member 2, respectively -- constituting -- an inside seal -- a member 1 The lip 10 which inserted in the seal groove 9 of the bore side of an outer ring of spiral wound gasket 8 the applied part 7 formed in the periphery edge of the seal rubber 5, and was formed in the inner circumference edge of the seal rubber 5 is pressed to the outer-diameter side of an inner ring of spiral wound gasket 11, and it is made to carry out the seal of the field. an outside seal -- a member 2 presses the lip 14 which inserted in the seal groove 13 of the outer-diameter side of an inner ring of spiral wound gasket 11 the applied part 12 formed in the inner circumference edge of the seal rubber 6, and was formed in the inner circumference edge of the seal rubber 6 to the bore side of an outer ring of spiral wound gasket 8, and is made to carry out the seal of the field
[0004] the above-mentioned inside seal -- a member 1 and an outside seal -- in case this is attached, it is equipped with one member 2 at a time sequentially from the inside, respectively
[0005]
[Problem(s) to be Solved by the Device] however, an inside seal -- a member 1 and an outside seal -- it becomes complicated mostly assembly furnishing the number of erectors, and equipping with one member 2 at a time as mentioned above causes cost quantity of a product
[0006] Then, as this design combines the seal member of two inside and outside with one beforehand and it can equip with a two seal member at a time, it aims at solving an above-mentioned trouble.
[0007]
[Means for Solving the Problem] The 1st means for attaining the above-mentioned purpose equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element. While rodding, this, and the seal rubber of one constitute each above-mentioned seal member, equipping a bore-diameter-of-outer-ring side with one of seal members and carrying out the seal of the outside-diameter-of-inner-ring side In the sealing device of the bearing which equips an outside-diameter-of-inner-ring side with the seal member of another side, and was made to carry out the seal of the bore-diameter-of-outer-ring side The fitting section corresponding to the flection of a member is prepared. the above-mentioned inside seal -- the flection of outwardness [rodding / of a member] -- preparing -- the above-mentioned outside seal -- the root section of the lip of the seal rubber of a member -- the

above-mentioned inside seal -- the above-mentioned inside seal -- it considers as the composition which set the incurvation height of the flection of a member as the height into which the above-mentioned fitting section and the root section of a lip fit

[0008] The 2nd means equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element. While rodding, this, and the seal rubber of one constitute each above-mentioned seal member and equipping a bore-diameter-of-outer-ring side with one of seal members In the sealing device of the bearing which comes to equip the seal member of another side an outside-diameter-of-inner-ring side the above-mentioned inside seal -- the flection of outwardness [rodding / of a member] -- preparing -- the outer-diameter side of the flection -- a bore-diameter-of-outer-ring side or an outside-diameter-of-inner-ring side -- inserting -- equipping -- the above-mentioned inside seal -- the lip of a member -- the opposed face of the bearing washer of another side -- pressing -- the above-mentioned outside seal -- it considers as the composition which made the above-mentioned flection press the lip of a member

[0009] The 3rd means equips with an inside seal member and an outside seal member between the inner rings of spiral wound gasket and outer rings of spiral wound gasket which intervened the rolling element. While a metal ring constitutes the above-mentioned inside seal member, and rodding, this, and the seal rubber of one constitute an outside seal member and equipping a bore-diameter-of-outer-ring side with one of seal members In the sealing device of the bearing which comes to equip the seal member of another side an outside-diameter-of-inner-ring side Prepare an outward flection in the metal ring of a member, and insert the outer-diameter side of the flection in a bore-diameter-of-outer-ring side or an outside-diameter-of-inner-ring side, and it equips with it. the above-mentioned inside seal -- the above-mentioned inside seal -- a member -- a bore side -- between the bearing washers of another side -- a gap -- preparing -- the above-mentioned outside seal -- it considers as the composition which made the above-mentioned inside seal member press two or more lips of a member

[0010]

[Function] before equipping bearing with the sealing device of the bearing concerning the 1st means of the above -- an inside seal -- the inside of the flection of rodding of a member -- an outside seal -- the fitting section of a member and the root section of a lip fit in, and it is in the state where both seal members were combined with one If this is pressed fit using a suitable pressing fixture between the inner ring of spiral wound gasket of bearing, and an outer ring of spiral wound gasket, it dissociates from an outside seal member and what is the bearing washer of either an inner ring of spiral wound gasket or an outer ring of spiral wound gasket, and has the wearing section in the direction (namely, inside) near a rolling element is equipped with an inside seal member, and the lip of the seal rubber will be pressed by the sealing surface of the bearing washer of another side, and will plan a seal. The bearing washer which has the wearing section in the one (namely, outside) distant from a rolling element is equipped with an outside seal member, and the lip of the seal rubber is pressed by the sealing surface of the bearing washer of another side, and plans a seal.

[0011] before [moreover,] equipping bearing also in the sealing device of the bearing concerning the 2nd aforementioned means -- an inside seal -- the inside of the flection of rodding of a member -- an outside seal -- a member -- the lip section reduces the diameter and fits in and both seal members are combined with one If this is pressed fit using a suitable pressing fixture between the inner ring of spiral wound gasket of bearing, and an outer ring of spiral wound gasket, what is the bearing washer of either an inner ring of spiral wound gasket or an outer ring of spiral wound gasket, and has the wearing section in the direction (namely, inside) near a rolling element is equipped with an inside seal member, a seal is planned between the wearing section and a rodding outer-diameter side, and the lip of the seal rubber will be pressed by the sealing surface of the bearing washer of another side, and will plan a seal. moreover, the bearing washer which has the wearing section in the one (namely, outside) distant from a rolling element is equipped with an outside seal member -- having -- the lip of the seal rubber -- an inside seal -- it is pressed by rodding of a member and a seal is planned

[0012] Also in the sealing device of the bearing concerning the 3rd aforementioned means, before equipping bearing, an outside seal member fits in inside the flection of the metal ring which constitutes an inside seal member, and it is combined with one. The operation which equips with this with a pressing fixture is the same as that of the above-mentioned case. however, this case -- an inside seal -- although a gap exists between the bore side of a member, and the other party bearing washer and there is no seal operation, two or more lips are prepared in an outside seal member, and a seal is planned when each lip is pressed by the inside seal member

[0013]

[Example] The 1st example shown in drawing 5 from drawing 1 is an example of the sealing device of the bearing concerning the 1st above-mentioned means. this sealing device -- an inside seal -- a member 21 and an outside seal -- it consists of combination of a member 22 these seals -- members 21 and 22 consist of the seal rubber 25 and 26 united with rodding 23 and 24 and the surroundings of it, respectively an inside seal -- an applied part 27 is formed in the periphery edge of seal rubber 25, among those, as for a member 21, a lip 28 is formed in a periphery an outside seal -- a lip 29 is formed in the periphery edge of seal rubber 26, among those, as for a member 22, an applied part 30 is formed in a periphery

[0014] the above-mentioned inside seal -- it is attached in the inner seal groove 32 prepared in the bore side of the outer ring of spiral wound gasket 31 of bearing, and the lip 28 is pressed by the outer-diameter side of an inner ring of spiral wound gasket 33, and the applied part 27 of a member 21 plans the seal of the field

[0015] the above-mentioned outside seal -- the applied part 30 of a member 22 is attached in the outside seal groove 34 (the outside [this] seal groove 34 is formed in the one distant from the outside [seal groove / inner / 32 / of the aforementioned outer ring of spiral wound gasket 31] 35, i.e., a rolling element.) prepared in the outer-diameter side of an inner ring of spiral wound gasket 33 Moreover, a lip 29 is pressed by the bore side of an outer ring of spiral wound gasket 31, and plans the seal of the field.

[0016] an inside seal -- the rodding 23 of a member 21 has the outward flection 36 into a periphery portion moreover, an outside seal -- the fitting section 37 which has an outer diameter corresponding to the bore side of the aforementioned flection 36 is formed in the periphery edge of the seal rubber 26 of a member 22, and the root portion of the aforementioned lip 29 is united with the outside corner portion of the fitting section 37

[0017] The incurvation height of the aforementioned flection 36 is formed in the height which fits in to the root portion of a lip 29 exceeding the above-mentioned fitting section 37 (refer to drawing 2).

[0018] the above-mentioned inside seal -- a member 21 and an outside seal -- before bearing is equipped with a member 22, it is shown in drawing 2 -- as -- the inside of the flection 36 of the rodding 23 of the inside seal 21 -- an outside seal -- it is combined with one by pushing in the fitting section 37 of a member 22, and the root section of a lip 29 Since the root section is pressed down by the flection 36 at this time, elastic deformation of the lip 29 is carried out in the diameter reduction direction like illustration, and it is crooked inside.

[0019] the above-mentioned double seal -- in order to equip with the assembly of members 21 and 22 between the inner ring of spiral wound gasket 33 of bearing, and an outer ring of spiral wound gasket 31, the pressing fixture 38 as shown in drawing 2 is used this pressing fixture 38 -- an inside seal -- the periphery press section 39 which presses the outer edge surface of a member 21, and an outside seal -- it has the inner circumference press section 41 which presses a part for the center section of a member 22 the projection height of this inner circumference press section 41 is set up lower than the projection height of the periphery press section 39 -- having -- the periphery press section 39 -- an inside seal -- the state equivalent to the outer edge surface of a member 21 -- it is -- the inner circumference press section 41 -- an outside seal -- a member 22 -- not hitting -- an inside seal -- the state (refer to the fixed chain line of drawing 3) where the member 21 was pushed in more than fixed -- for the first time -- the outside seal -- the outer edge surface of a

[0020] the pressing fixture 38 like **** -- using -- an inside seal -- a member 21 and an outside seal -- for equipping with the assembly of a member 22 between an inner ring of spiral wound gasket 33 and an outer ring of spiral wound gasket 31 -- first -- drawing 2 -- like -- the periphery press section 39 of the pressing fixture 38 -- an inside seal -- it hits against the outer edge surface of a member 21, and this is pressed

[0021] it is shown in that that is right, then drawing 3 -- as -- an inside seal -- the applied part 27 of a member 21 carries out elastic deformation, and pushes into the bore side of an outer ring of spiral wound gasket 31 -- having -- this, simultaneously an outside seal -- a member 22 also moves to one and the applied part 30 hits the outer-diameter outside end face of an inner ring of spiral wound gasket 33

[0022] furthermore -- if the pressing fixture 38 moves forward -- an inside seal -- a member 21 -- an outside seal -- from a member 22 -- separating -- the inner direction -- moving -- the inner circumference press section 41 -- an outside seal -- the center section of the member 22 is hit (refer to the alternate long and short dash line of drawing 3)

[0023] when the pressing fixture 38 advances further, it is shown in drawing 4 -- as -- an outside seal -- the applied part 30 of a member 22 carries out elastic deformation, and is stuffed into the bore side of an inner ring of spiral wound gasket 33 moreover, an outside seal -- the applied part 30 of a member 22 is attached in a seal groove 34 outside an inner ring of spiral wound gasket 33 -- having -- simultaneous -- an inside seal -- the applied part 27 of a member 21 is attached in the inner seal groove 32 of an outer ring of spiral wound gasket 31 this time -- an inside seal -- the lip 28 of a member 21 is pressed by the bore side of an inner ring of spiral wound gasket 33, and plans a seal

[0024] next, when the pressing fixture 38 is retreated, it is shown in drawing 1 -- as -- an outside seal -- the lip 29 of a member 22 is pressed by the bore side of an outer ring of spiral wound gasket 31, and a seal is planned

[0025] in addition, it is shown in drawing 5 -- as -- an inside seal -- the outer edge surface of a member 21, and an outside seal -- the presser foot stitch tongues 42 and 43 which engage with each seal rubber 25 and 26 mutually at the inner end face of a member 22 -- preparing -- a double seal -- you may make it the combination of members 21 and 22 become certain

[0026] Next, the 2nd example shown in drawing 11 from drawing 6 is an example of the 2nd above-mentioned means. the inside seal in this case -- a member 45 -- rodding 46 and the inner circumference edge of cross-section reverse L form -- seal rubber 47 -- unifying -- the flection 48 of rodding 46 -- an outside seal -- it has the width of face exceeding the outer edge surface of a member 49 A lip 51 is formed in the inner circumference edge of the above-mentioned seal rubber 47.

[0027] an outside seal -- a member 49 unites seal rubber 53 with rodding 52, a lip 54 is formed in the periphery edge of seal rubber 53, and an applied part 55 is formed in an inner circumference edge

[0028] in the state before equipping bearing, it is shown in drawing 6 -- as -- an inside seal -- the lip 51 of a member 45 -- an outside seal -- the flection 56 top of a member 49 -- appearing -- moreover, an outside seal -- the lip 51 of a member 49 -- an inside seal -- it is pressed by the bore side of the flection 48 of a member 45

[0029] the above-mentioned inside seal -- a member 45 and an outside seal -- the assembly of a member 49 is pressed fit by the suitable pressing fixture 57 between an inner ring of spiral wound gasket 33 and an outer ring of spiral wound gasket 31 (refer to drawing 7) in this case, an inside seal -- a member 45 -- an outside seal -- it moves forward relatively to a member 49, and is attached in the predetermined inner seal groove 58 and the outside seal groove 59, respectively this time -- an inside seal -- the rodding 46 of a member 45 sticks to the bore side of an outer ring of spiral wound gasket 31, a seal is planned, and a lip 51 is pressed by the outer-diameter side of an inner ring of spiral wound gasket 33, and a seal is planned

[0030] moreover, an outside seal -- the lip 54 of a member 49 -- an inside seal -- a seal is planned between the bore sides of the flection 48 of the rodding 46 of a member 45 a double seal -- the state where it equipped with members 45 and 49 -- a double seal -- members 45 and 49 are shown in drawing 7 -- as -- an outside seal -- the lip 54 of a member 49 -- an inside seal -- it is pressed by the flection 48 of a member 45 and a seal is planned

[0031] in addition, it is shown in drawing 8 -- as -- an inside seal -- the hollow 62 which forms the height 61 of a cross-section trapezoid in the outer edge surface of the seal rubber 47 of a member 45, and fits in each other partially with the height 61 -- an outside seal -- the double seal in the stage before equipping bearing by preparing in a member 49 -- unification of members 45 and 49 can be made more reliable

[0032] moreover, since the seal effect is increased further, it is shown in drawing 9 -- as -- an outside seal -- the inside of the seal rubber 53 of a member 49 -- the side lip 63 -- preparing -- this -- an inside seal -- you may make it make the rodding 46 of a member 45 press

[0033] what was shown in drawing 10 -- an inside seal -- the seal rubber 47 of a member 45 -- the

side lip 64 -- preparing -- this -- an outside seal -- the rodding 56 of a member is made to press
[0034] what was shown in drawing 11 -- an outside seal -- the radial lip 65 projected in the direction of a radial to the inside of the seal rubber 53 of a member 49 -- preparing -- this -- an inside seal -- the flection 48 of a member 45 is made to press
[0035] Next, the 3rd example shown in drawing 14 from drawing 12 is an example of the 3rd above-mentioned means. in this case, an inside seal -- only the metal ring which has the flection 48 of cross-section reverse L form constituted the member 45, among those Gap G is formed between the diametral plane and the inner-ring-of-spiral-wound-gasket 33 outer-diameter side
[0036] an outside seal -- the 2nd example of the above-mentioned [a member 49] -- the same -- from rodding 52 and seal rubber 53 -- changing -- the composition -- adding -- the seal rubber 53 -- the side lip 63 of three sheets -- preparing -- the inside seal of the above [each side lip 63] -- it presses to a member 45 Moreover, what was shown in drawing 13 forms the side lip 63 of two sheets from which the direction of crookedness differs. What was shown in drawing 14 forms the side lip 63 of two sheets, and the radial lip 65 of one sheet.
[0037] each example of the above [what was shown in drawing 14 from above-mentioned drawing 12] in the state before wearing -- the same -- an inside seal -- although it is pushed into the inside of a member 45 and unites with it, it pushes in and equips using a pressing fixture between an inner ring of spiral wound gasket 33 and an outer ring of spiral wound gasket 31 at the time of wearing
[0038] in addition -- which example described above -- an inside seal -- members 21 and 45 -- an inner ring of spiral wound gasket 33 -- equipping -- an outside seal -- you may make it equip an outer ring of spiral wound gasket 31 with members 22 and 49
[0039]
[Effect of the Device] As mentioned above, in the stage before an inside seal member and an outside seal member equip bearing, it is combined with one, and dissociates in and abroad at the time of pressing fit, or only a predetermined interval spreads, and an inner ring of spiral wound gasket and an outer ring of spiral wound gasket are equipped with this design, respectively. Therefore, according to this design, since bearing can be once equipped with a two seal member at once by assembly operation, working capacity can improve and it can ** to reduction of product cost.

[Translation done.]